

FIG. 1A-1
FIG. 1A-2

FIG. 1A

glattlccat ooooooggg gatcgcgagg ggcgcggcact clgaactcclg glggatgggg claggggaglc agagtlcagg cctgcclggc tgggggcggg cgcctccgggt cagcATGGAA
 120 n E
 AGTCTCGG GGGTCTGGT ATTCTGCTG CTGGCTGCG GACTGCCGCT CCRGGGGGCC ARGGGGTTC GTGATGTCT GGGCCATGAG CAGTATCTGG ATCACATGAG GGGAGACAC
 240 S L C G U L V F L L L A R A G L P L Q A R K R F R D U L G H E Q Y P D H N R E N H
 CATTACGCG GCTGGCTTC AGATGGAAT GATGGGATG ARACGCTGTA TCCAGTGTGG AGGAGGGGAG AGGCGCATG GAGGACTCC TGGGAGGAG GCCGTGTGCA GGCAGCCCTA
 360 Q L A G W S S D E H E U D E Q L Y P V W R R G E G R U K D S W E G G R U Q A R L
 ACCAGTCAAT CACCGGCTT GGTGGTTC RATATCCTT TCGTAGTGA CTTGGTGTTC CCGATGTC AGRAGGAGA TCCACAGGC ATATCTCT ATGACAGGAA CTCACAGCT
 480 T S D S P A L U G S H I T F V U H L U F P R C Q K E D A H G H I V Y E R H C A S
 GATTGGAG TGGCTTGA CCGTATGTC TACACTGA CCRAGGGGC AGACATGAG GACTGGGAG ACACACAC CACCTCAGGT TCCCGACGG GAGGCCCTTC
 600 D L E L A S D P Y V Y N W T T G A D D E D U E D H T S Q G Q H L R F P D G K P F
 CTTGCCCCC ACGACCGGA GATGAGAC TTCTCTACG TCTTCCAC ACCTGGTCA GTGTTACCA CAGTTTCTA TACACAGT CACCTTACCA
 720 P R P H G R K K W H F V V U F H T L G Q Y F Q K L G Q C S R R U S I H T U H L T
 GTTGCCCTC AGTATGTC TTTCAGGAC ACGGCCGGC ATACATCCC ATCTCCAG GTATGTGTA ACGATCAGA TCCCTATAT COTGACCTG
 840 U G P Q U H E U I V F R R H G A Y I P I S K V K D V Y U I T D Q I P I F U T H
 TACCGAGA ATGACCGGA CTCGTCTGAT GAACCTTCC TCRAGACCT CCCCATTTC TTGATGTC TCCATGCTAT TTCTGCACT ACTCTGCCAT TTCTACAG
 960 Y Q K H D R H S S O E T F L R D L P I F F D U L I H D P S H F L N Y S A I S Y K

FIG. 1A-1

1080	TTGGACCTTTC GGGACACAC TGGCCTTGTT GTCCTACAC ATCACACTTT GATACACACG TATGTGCTCA ATGGACCTTT CACCTTTTAC CTCACCTGCG ARACTGACT GCGCGGACCA
1200	U H F G D H T G L F U S H M H T L H H T Y U L H G T F H F H L T U Q T A V P G P TTGGCCCTTAC CACACCTTC GCTTCTCT TCGACTCTC CTTCGCTGC ACTTCGCT TACCCACAT TATCACACC TAGTCTCTCT TTATGCTTA CTGGCTACAA ATCATGACG
1320	C C P S P T P S S T S P S P S S P S P S P T L S T P S P S L H P T G Y K S H E TITTCATCA ATACTGCCA ATAAACAGAT ATGGTACTT CAGACCCACC ATCACATTC TAGATGAAI CCACAGACT CCACATCC AGGTACACA TGTCCCATC
1440	L S D I S H E H C R I H R Y G V F R A T I T I U D G I L E U H I I Q U A D U P I CCCCACACTG ACCTTGACAA CTCACTGATG GACTTCATG TCACCTGCAA AGCGGCCACT CCCACGGAGC CCTGTACCAT CATCTCAGC CCCACCTGCC ACATCCGCCA GACACGGGTG
1560	P T L Q P D H S L H D F I U T C K G A T P T E A C T I I S D P T C Q I A Q H R U TCCAGCCCGG TGCCTGTGCA TCACCTGTGCG CTCCTATGG TCCGCACT ACTGTGTGAA TTACCTCTG GAGACGATG CACCTTGGC CTCACACAC
1680	C S P V A U D E L C L L S U A R A F H G S G T Y C V H F T L G D R S L A L T S GCTCTGATC CTATCCCTGG CAAAGACCTA GCTTCCCTC TGACACACT GATCTGTCT CTGATCTCCA TTGCTGCTT GGCATCTTT CTCACCTGCT TTACCTCTT CTTGTACAAA
1800	A L I S I P G K O L G S P L A T U H G U L I S I G C L A H F V T H U T I L L Y K AARACACAA CGTACARCC AATACARAC TCACACAGA ACCTGTGTCRA GGCACAGGC CTGATGTGTT TTCTACCCA TGCARARCC CCGTCTGCC GACACAGCC GACACAGCAI
1920	K K K K T Y K P I G H C T R H U U K G K G L S U F L S H A K A P F S A G D R E K O CTACCTTCC ACACACACC ATCATCTCT TAACTCTCA CTCCTCTC (GCCTGGAA CCACTCTC TGCTGTGA TGAGGTGT GCAGAGTAC ATGACTGGA GCTGTGTTT
2040	P L L Q D K P U H L CTCCGGATT ATGTAAAT GTATCATG GTTGGGAG GTGTTAAT TGGCATTTA GTGAAGGAT GGGAGAGCAG TATCTCTCG CATCTGATT GTGGTTTTTA TACTGTAA
2160	AGGGTGGCA CATGTCT GGGGGGGGG GTGGGGTCA CTGTACTTA AGGTCTAGG TTAACTGGG GAGGATGCC CAGGTCTCTT OGATTTCTAC ACAAAGTGT CCLGAACCA
2280	GTGTCTCTG OCTAAAGG CATGTTCT CACTCTCT TCACTCAIT GAACATCTT GGAATCTA ATGGAACCA GCTTGTGA TGGTGTGT GTGTCTAA
2320	GTACTCATT AAAAAAGAG TCTATAAO AAAAAA

FIG. 1A-2

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EXON	BAC Start	BAC Stop	cDNA Start	cDNA Stop	Exon Length
1	83294	83455	1	162	162
2	89834	89986	163	314	152
3	90696	90839	315	458	144
4	93419	93594	459	634	176
5	95509	96665	635	791	157
6	95983	97300	792	1109	318
7	103044	103142	1110	1208	99
8	104413	104515	1209	1311	103
9	106494	106702	1312	1520	209
10	110048	110141	1521	1614	94
11	110592	111633	1615	2656	1042

poly A signal is position 111614-111619
translation start (ATG) is:
cDNA: 92
Gene: 83385

FIG. 1B

K-D

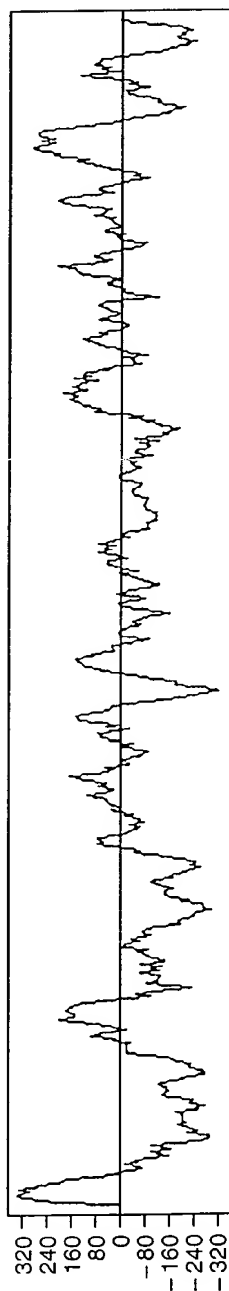


FIG. 1C

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FIG. 2A-1
FIG. 2A-2
FIG. 2A-3
FIG. 2A-4
FIG. 2A-5

FIG. 2A

FIG. 2A-1

rat	GTGTTCCCA	GATGCCAGAA	GGAAGATGCC	AACGGCAATA	TCGTCTATGA	GAGAACTGC	AGAATGATT	TGGAG	375
mouse	GTGTTCCCA	GATGCCAGAA	GGAAGATGCT	AATGGCAATA	TCGTCTATGA	GAAGAACTGC	AGGAATGATT	TGGGA	375
human	ATATTCCCTA	GATGCCAATA	GGAAGATGCC	AATGGCAACA	TAGTCTATGA	GAAGAACTGC	AGAAATGAGG	CTGGT	375
rat	CTGGCTTCTG	ACCGTATGT	CTACAACCTGG	ACCACAGGGG	CAGACGATGA	GGACTGGGAA	GACAACACCA	GCCAA	450
mouse	CTGACATCTG	ACCTGCATGT	CTACAACCTGG	ACTGCAGGGG	CAGATGATGG	TGACTGGGAA	GATGGCACCA	GCCGA	450
human	TTATCTGCTG	ATCCATATGT	TTACAACCTGG	ACAGCATGGT	CAGAGGACAG	TGACGGGAA	AATGGCACCG	GCCAA	450
rat	GGCCAGCAC	TCAGGTTCCC	CGACGGGAAG	CCCTTCCCTC	GCCCCACGG	ACGGAAGAA	TGGAACCTCG	TCTAC	525
mouse	AGCCAGCATC	TCAGGTTCCC	GGACAGGAGG	CCCTTCCCTC	GCCCCACATGG	ATGGAAGAA	TGGAGCTTG	TCTAC	525
human	AGCCATCATA	ACGCTTCCC	TGATGGGAAA	CCTTTCCCTC	ACCACCCCGG	ATGGAGAAGA	TGGAATTICA	TCTAC	525
rat	GTCTTCCACA	CACCTGGTCA	GTATTTTCAA	AAGCTGGGTC	AGTGTTCAGC	ACGAGTTTCT	ATAAACACAG	TCAAC	600
mouse	GTCTTCCACA	CACCTGGCCA	GTATTTTCAA	AAACTGGGTC	GGTGTTCAGC	ACGGGTTTCT	ATAAACACAG	TCAAC	600
human	GTCTTCCACA	CACCTGGTCA	GTATTTTCCAG	AAATTGGGAC	GATGTTCAGT	GAGAGTTTCT	GTGAACACAG	CCAAT	600
rat	TTGACAGTTG	GCCCTCAGGT	CATGGAAGTG	ATTGTCTTTC	GAAGACACGG	CCGGGCATAC	ATTCCCCTCT	CCAAA	675
mouse	TTGACAGCTG	GCCCTCAGGT	CATGGAAGTG	ACTGTCTTTC	GAAGATACGG	CCGGGCATAC	ATTCCCCTCT	CGAAG	675
human	GTGACACTTG	GGCCTCAACT	CATGGAAGTG	ACTGTCTACA	GAAGACATGG	ACGGGCATAT	GTTCCTCATCG	CACAA	675

FIG. 2A-2

rat	GTGAAGACG	TGTATGTGAT	AACAGATCAG	ATCCCTATAT	TCGTGACCAT	GTACCAGAAG	AATGACCGGA	ACTCG	750
mouse	GTGAAGATG	TGTATGTGAT	AACAGATCAG	ATCCCTGTAT	TCGTGACCAT	GTCCCAGAAG	AATGACAGGA	ACTTG	750
human	GTGAAGATG	TGTACGTGGT	AACAGATCAG	ATTCTCTGT	TTGTGACTAT	GTTCCAGAAG	AACGATCGAA	ATTCA	750
rat	TCTGATGAAA	CCTTCCTCAG	AGACCTCCCC	ATTTCTCTCG	ATGTCCTCAT	TCACGATCCC	AGTCATTTCC	TCAAC	825
mouse	TCTGATGAGA	TCTTCCTCAG	AGACCTCCCC	ATCGTCTCTG	ATGTCCTCAT	TCATGATCCC	AGCCACTTCC	TCAAC	825
human	TCCGACGAAA	CCTTCCTCAA	AGATCTCCCC	ATTATGTTTG	ATGTCCTCAT	TCATGATCCT	AGCCACTTCC	TCAAT	825
rat	TACTCTGCCA	TTTCTCTACAA	GTGGAACCTT	GGGACAACA	CTGGCCTGTT	TGTCCTCCAAC	AATCACACTT	TGAAT	900
mouse	GACTCTGCCA	TTTCTCTACAA	GTGGAACCTT	GGGACAACA	CTGGCCTGTT	TGTCCTCCAAC	AATCACACTT	TGAAT	900
human	TATTCTACCA	TTAACCTACA	GTGGAGCTTC	GGGATATA	CTGGCCTGTT	TGTTTCCACC	AATCATACTG	TGAAT	900
rat	CACACGTATG	TGCTCAATGG	AACCTTCAAC	TTTAACCTCA	CCGTGCAAAC	TGCAGTGCCG	GG-----	-ACCA	966
mouse	CACACTTATG	TGCTCAATGG	AACCTTCAAC	CTTAACCTCA	CCGTGCAAAC	TGCAGTGCCC	GG-----	-GCCA	966
human	CACACGTATG	TGCTCAATGG	AACCTTCAAC	CTTAACCTCA	CTGTGAAGC	TGCAGCACCA	GGACCTTGTC	CGCCA	975
rat	-TGC-CC-T	CACCCACACC	TTCCGCTTCT	TCTTCGACTT	CTCCTTC---	---GCCTGCA	TCTTCGCCCTT	CA---	1029
mouse	-TGC-C--T	--CC--CC	TTCCGCTTTC	ACTCCGCTT	CACCTTCAAC	TCCGCCCTTA	CCTTCGCCCTT	CACCT	1032
human	CCGCCACCAC	CACCCAGACC	TTC-----	-----AA-	-----A	-----	-----	-ACC-	1004

FIG. 2A-3

rat	GTGAATTTC	CTCTGGGAGA	CGATGCAAGC	CTGGCCCTCA	CCAGGCCCT	GATCTCTATC	CCTGGCAAAG	ACCTA	1476
mouse	GTGAATTTC	CTCTGGGAGA	TGATGCAAGC	CTGGCCCTCA	CCAGCACCT	GATCTCTATC	CCTGGCAAAG	ACCCA	1482
human	GTGAACCTCA	CCCTGGGGGA	TGACACAAGC	CTGGCTCTCA	CGAGCACCT	GATTTCTGTT	CCTGACAGAG	ACCCA	1434
rat	GGCTCCCTC	TGAGAACAGT	GAATGGTGC	CTGATCTCCA	TTGGCTGCC	GGCCATGTTT	GTCAACATGG	TTACC	1551
mouse	GACTCCCTC	TGAGAGCAGT	GAATGGTGC	CTGATCTCCA	TCGGCTGCC	GGCTGTGCTT	GTCAACATGG	TTACC	1557
human	GCCTCGCCTT	TAAGGATGGC	AAACAGTGCC	CTGATCTCCG	TTGGCTGCTT	GGCCATATTT	GTCACTGTGA	TCTCC	1509
rat	ATCTTGCTGT	ACAAAAAACA	CAAGACGTAC	AAGCCAATAG	GAACCTGCAC	CAGGAACGTG	GTCAAGGGCA	AAGGC	1626
mouse	ATCTTGCTGT	ACAAAAAACA	CAAGGCGTAC	AAGCCAATAG	GAACCTGCCC	CAGGAACACG	GTCAAGGGCA	AGGC	1632
human	CTCTTGCTGT	ACAAAAAACA	CAAGGAATAC	AACCCAATAG	AAATAGTCC	TGGGAATGTG	GTCAAGGGCA	AAGGC	1584
rat	CTGAGTGTTT	TTCTCAGCCA	TGCAAAAGCC	CCGTTCTTCC	GAGGAGACCG	GGAGAAGGAT	CACTGTCTCC	AGGAC	1701
mouse	CTGAGTGTTT	TTCTCAGTCA	CGCAAAAGCC	CCGTTCTTCC	GAGGAGACCA	GGAGAAGGAT	CACTGTCTCC	AGGAC	1707
human	CTGAGTGTTT	TTCTCAACCG	TGCAAAAGCC	GTGTTCTTCC	CGGGAACCA	GGAAAAGGAT	CCGTACTC-	---AA	1655
rat	AAGCCATGGA	TGCTCTAA--	-----	-	-	-	-	-	1719
mouse	AAGCCAAGGA	CACTCTAA--	-----	-	-	-	-	-	1725
human	AAACCAAGAA	---TTTAAAG	GAGTTTCTTA	A	-	-	-	-	1683

FIG. 2A-5

FIG. 2B-1

rat MESLCGVLVF LLLAAGLPLQ AAKRFRDVLG HEQYPDHMR E NNQLRGWSSD 50
 mouse MESLCGVLGF LLLAAGLPLQ AAKRFRDVLG HEQYPDHMR E HNQLRGWSSD 50
 human MECLYYFLGF LLLAARLPLD AAKRFRDVLG NERPSAYMR E HNQLRGWSSD 50

FIG. 2B-2

rat ENEWDEQLYP VWRRGGRWK DSWEGGRVQA ALTSDSPALV GSNITFVVNL 100
 mouse ENEWDEHLYP VWRRGGRWK DSWEGGRVQA VLTSDSPALV GSNITFVVNL 100
 human ENDWNEKLYP VWKRGDMRWK NSWKGGRRVQA VLTSDSPALV GSNITFAVNL 100

FIG. 2B

rat VFPRCQKEDA NGNIVYERN RSDLELASDP YVYNWTTGAD DEDWEDNTSQ 150
 mouse VFPRCQKEDA NGNIVYERK RNDLGLTSDL HVYNWTTAGAD DGDWEDGTSR 150
 human IFPRCQKEDA NGNIVYERK RNEAGLSADP YVYNWTTAWSE DSDGENGTTGQ 150

rat GQHLRFPDCK PFPRPHGRKK WNFVYVFHTL GQYFQKLGC SARVSINTVN 200
 mouse SQHLRFPDRR PFPRPHGWKK WSFVYVFHTL GQYFQKLGC SARVSINTVN 200
 human SHNVFPDCK PFPHHPGWRR WNFVYVFHTL GQYFQKLGC SVRVSINTAN 200

rat LTVGPQVMEV IVFRRHGRAY IPISKVKDVI VITDQIPFV TMYQKNDNRN 250
 mouse LTAGPQVMEV TVFRRYGRAY IPISKVKDVI VITDQIPFV TMSQKNDNRN 250
 human VTLGPQVMEV TVYRRHGRAY VPAAQVKDVI VITDQIPFV TMYQKNDNRN 250

rat SDETFLRDLF IFDVLHDP SHFLNYSALS YKWNFGDNTG LFVSNHNTLN 300
 mouse SDEIFLRLDP IFDVLHDP SHFLNDSALS YKWNFGDNTG LFVSNHNTLN 300
 human SDETFLKDLF IMFVLHDP SHFLNYSALT YKWNFGDNTG LFVSTNHTVN 300

FIG. 2B-1

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rat	HTYVLNGTFN	FNLTVQTAVP	GPCSPPTPS-	-PSSSTSPSP	ASSPPTLST	348
mouse	HTYVLNGTFN	FNLTVQTAVP	GPCPPSPST	PSPSTPPLP	SPSPLPTLST	350
human	HTYVLNGTFN	FNLTVQAAAP	GPCPPPPP-	-----PPRP	-----SK	334
rat	PSPSLMPTGY	KSMELSDISN	ENCRINRYGY	FRATITIVDG	ILEVNIIQVA	398
mouse	PSPSLMPTGY	KSMELSDISN	ENCRINRYGY	FRATITIVDG	ILEVSIMQIA	400
human	PTPSLGPAGD	NPLELSRIPD	ENCQINRYGH	FQATITIVDG	ILEVNIIQMT	384
rat	DVPIPTLQPD	NSLMDFIVTC	KGATPTEACT	IISDPTCQIA	QNRVCSPVAV	448
mouse	DVPMPTPQPA	NSLMDFTVTC	KGATPMEACT	IISDPTCQIA	QNRVCSPVAV	450
human	DVLMPPVPWE	SSLIDFVVTC	QGSIPTEVCT	IISDPTCEIT	QNTVCSPVDV	434
rat	DELCLLSVRR	AFNGSGTYCV	NFTLGDDASL	ALTSALISIP	GKDLGSPLRT	498
mouse	DGLCLLSVRR	AFNGSGTYCV	NFTLGDDASL	ALTSTLISIP	GKDPDSPPLRA	500
human	DEMCLLTVRR	TFNGSGTYCV	NFTLGDDTSL	ALTSTLISVP	DRDPASPLRM	484
rat	VNGVLISIGC	LAMFVTMVTI	LLYKKHKTYK	PIGNCTRNVV	KGKGLSVFLS	548
mouse	VNGVLISIGC	LAVLVTMVTI	LLYKKHKKAYK	PIGNCPNRTV	KGKGLSVLLS	550
human	ANSALISVGC	LAIFVTVISL	LVYKKHKEYN	PIENSPGNVV	RSKGLSVFLN	534
rat	HAKAPFSRGD	REKDPQLQDK	PW--ML	572		
mouse	HAKAPFFRGD	QEKDPQLQDK	PR--TL	574		
human	RAKAVFFPGN	QEKDPQLLKNQ	EFGKVS	560		

FIG. 2B-2

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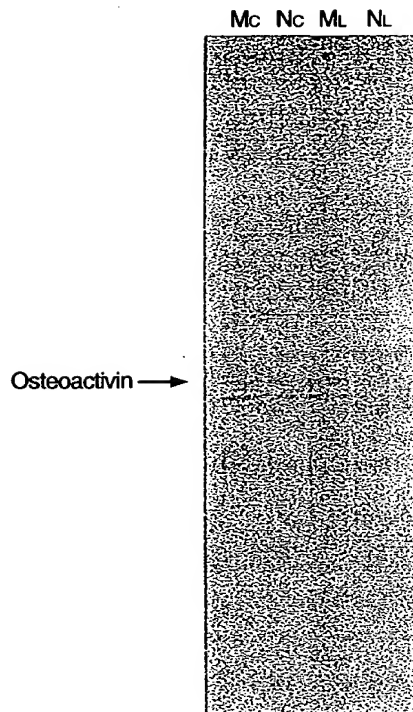


FIG. 3

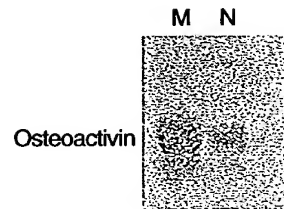


FIG. 4A

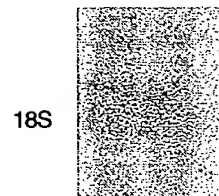


FIG. 4B

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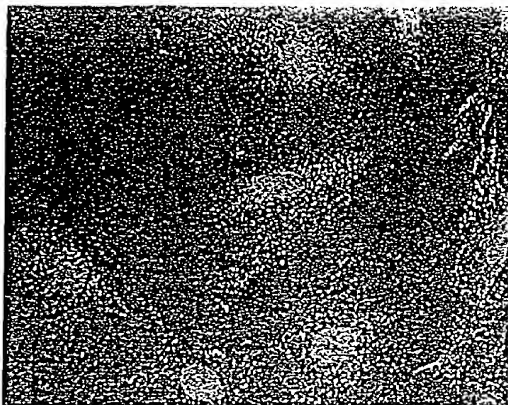


FIG. 5



FIG. 5A



FIG. 5B

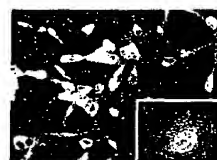


FIG. 5C

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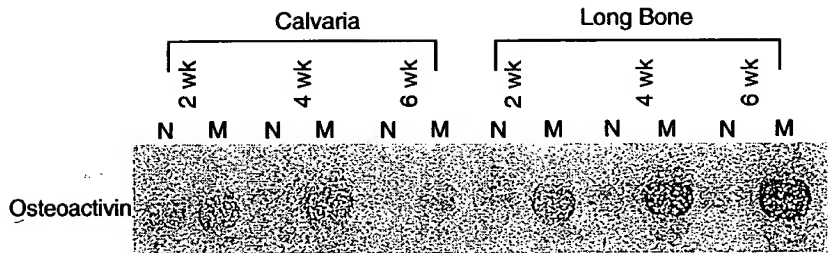


FIG. 6

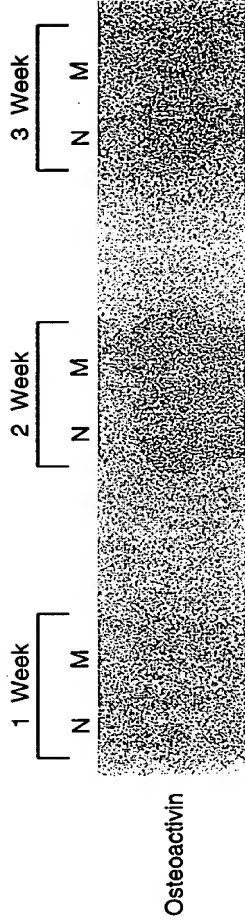


FIG. 7A

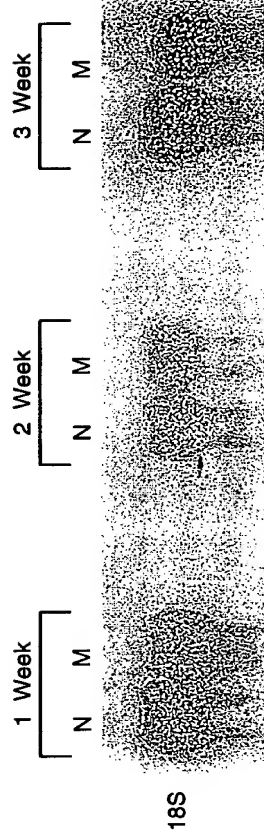


FIG. 7B

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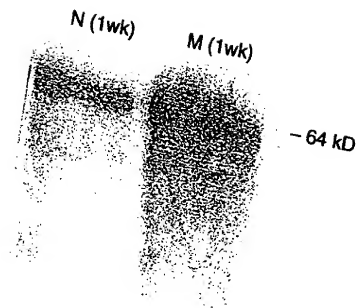


FIG. 8

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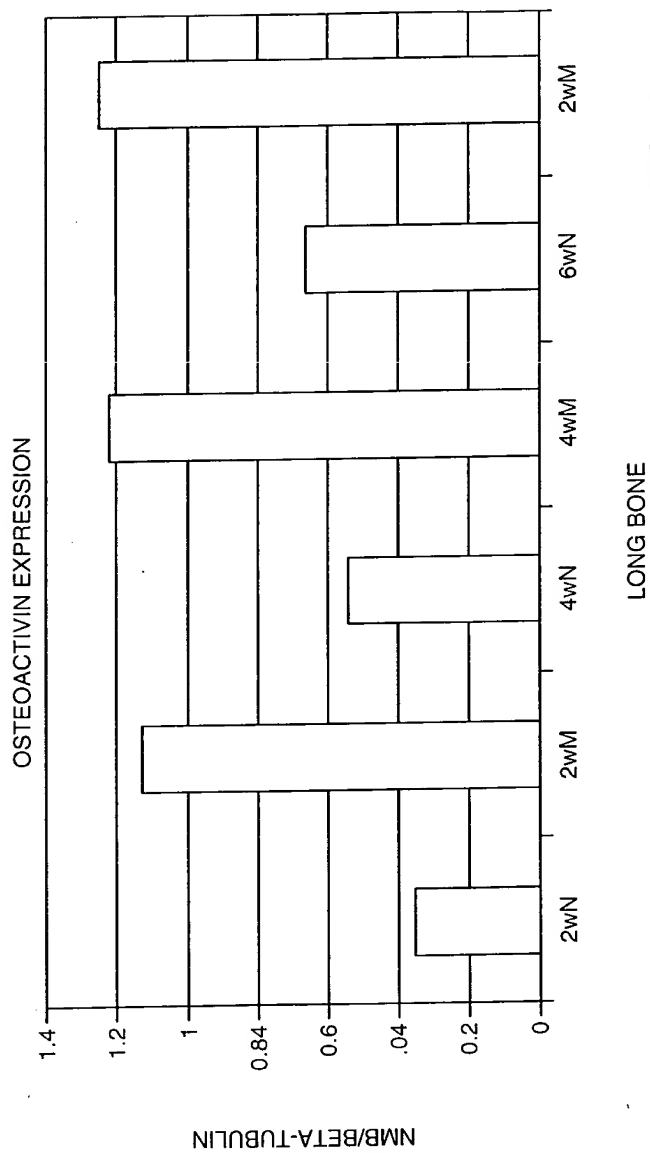


FIG. 9

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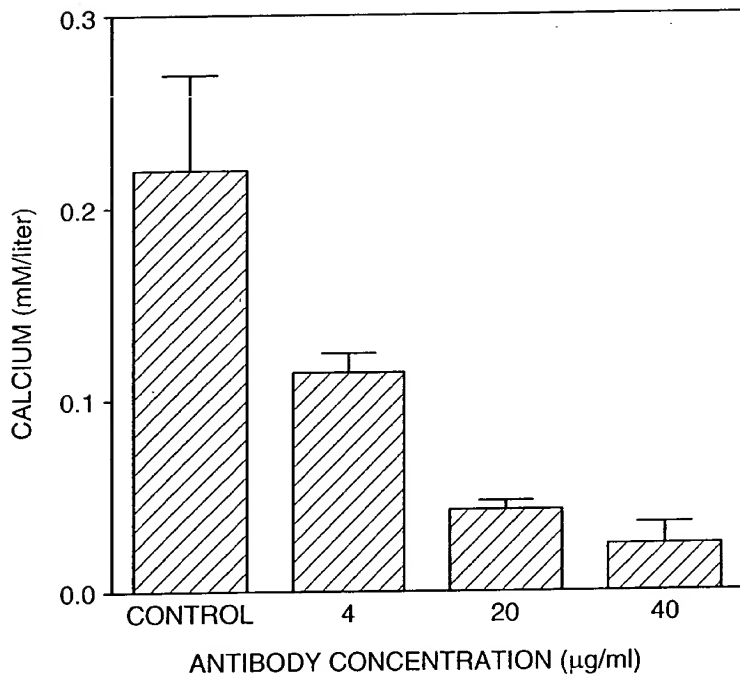


FIG. 10